

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

APPELLANT: PANG, ZIJING
PILKINGTON

EXAMINER: JAMES

SERIAL NO. : 10/529,283

ART UNIT: 3656

FILED: March 25, 2005

PCT FILED: September 12, 2003

PCT NO.: PCT/CN03/00767

FOR: ELASTIC COUPLE BARRING APPARATUS

Assistant Commissioner for Patents

Washington, D.C. 20231

Attention: Board of Patent Appeals and Interferences

BRIEF OF APPELLANT

This Brief is in furtherance of the Notice of Appeal filed in this case on February 23, 2010. This is an appeal from the final Rejection of the Examiner dated September 24, 2009 rejecting all the pending claims 1, 5-9 and 21-31. This Brief is submitted in triplicate and is accompanied by the requisite fee set forth in 37 C.F.R. §1.17(c). A Petition for a One-Month Extension of Time also accompanies this Brief with the requisite fee set forth in 37 C.F.R. §1.17(a) (2).

REAL PARTY IN INTEREST

The real and only party in interest in this application is the sole inventor Zijing Pang,

Shandong (CN).

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

For purposes of Appeal, the status of the claims is (or will be) as follows:

Claims 1, 5-9, 21 and 27 are (or will be) rejected.

Claims 2-4, 10-20, 22-26, 28-31 are (or will be) cancelled.

The appealed claims are: 1, 5-9, 21 and 27.

STATUS OF AMENDMENTS

In the final Office Action of September 24, 2009, claims 1, 5-9 and 21-31 were finally rejected and claims 22-26, 28 and 29 were objected. Appellants' Request for Reconsideration filed July 21, 2009 responding to the non-final Office Action of April 29, 2009, presenting amended claims 1, 8 and 9, canceling claims 3 and 10-20 and adding claims 21-31, has been or will be entered for purposes of appeal according to the final Office Action of September 24, 2009. In the final Office Action of September 24, 2009, examiner insisted that "everything has an elastic property" to conclude that any support is an "elastic support".

SUMMARY OF THE INVENTION

The present invention provides an elastic couple rotor turning gear installed on the

top frame 6 of a hydroelectric generating set for adjusting shafting center of the generating set. An elastic support 5 is connected to the top frame 6 of the driven device. FIGS. 2 and 3 show the elastic support 5, which includes an upper ring 51, a lower ring 52 and twelve elastic ribs 53 between the upper and lower rings (specification, page 2, paragraph [0026], lines 1-7).

A ring-like casing 4 with a U-shape cross section is mounted on the elastic support 5. Thus, an elastic connection is established between the top frame 6 and the elastic couple rotor turning gear. The casing 4 has a casing cover 3 firmly fixed thereon (specification, page 2, paragraph [0026], lines 11-15).

As shown in FIG.1, two pairs of speed reducers 2 each with an electric motor 1 are installed on the casing cover to form two couples, wherein the two speed reducers and electric motors in each pair are symmetrically positioned (specification, page 2, paragraph [0026], lines 15-21). As shown in FIG. 2, the output shaft 16 extends into the casing 4 under the casing cover 3. The pinion gear 7 is connected to the output shaft 16. The bull gear 8 is meshed with the pinion gear 7. As shown in FIG. 2 and FIG.4, the gear body 81 of the bull gear 8 is received in the casing 4 and two key seats 83 are defined on an inner wall 82 of the bull gear 8. Two parallel keys 10 are respectively received in the key seats 83 for connecting the bull gear 8 and a shafting coupling 9 (specification, page 2, paragraph [0026], lines 23-31). The shafting coupling 9 is an integral type which is connected to an end of the rotor 12 of the driven device (specification, page 2, paragraph [0022], lines 3-5).

FIG. 6 shows that an upright post 84 is mounted on the bull gear 8 to correspond to the parallel keys for transmitting torque (specification, page 2, paragraph [0029], lines 10-14).

In the invention, the elastic support is used instead of the conventional rigid support. Therefore, the apparatus has an improved self-stabilization performance and a small vibration during rotating, and can be operated easily (specification, page 2, paragraph

[0011], lines 4-8).

ISSUES

Is claim 8 is anticipated by Widdrington, USP 3252349?

Are claims 1 and 5-7 unpatentable over Widdrington, USP 3252349 in view of Kiernan, USP 3407681 and further in view of CN 99222132.3?

Are claims 9, 21 and 27 unpatentable over Widdrington USP 3252349 in view of CN 99222132.3?

Is it proper to construct the “elastic support” by “everything has an elastic property” to conclude that every support may be deemed an “elastic support”?

GROUPING OF CLAIMS

The claims stand or fall together.

ARGUMENT

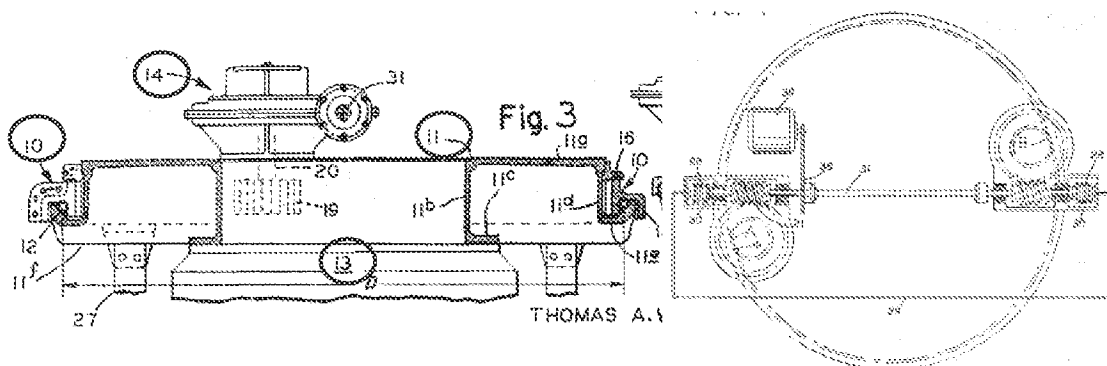
I .The rejection of claim 8 under U.S.C. 102(b) as being anticipated by Widdrington, USP 3252349 is improper.

Examiner stated “[W]iddrington discloses a device comprising at least two driving unit (14 and 15) symmetrically arranged around the driven device (mechanism) for evenly rotating the driven device, wherein each of the driving units (14 and 15) is connected to a frame (13) through a substantially elastic support (11a-11c, everything has an elastic property)”.

Appellant respectfully disagrees.

a. Widdrington fails to disclose “elastic support” in claim 8.

It is stated in Widdrington as follows: “[T]he mechanism itself comprises an internally toothed spur gear 10 rotatable upon base frame 11 about a vertical axis by means of an annular ball bearing construction 12 further designated by the diameter D. The base frame 11 in turn is securely supported by a foundation 13. Gear drive units 14 and 15 are mounted on the base frame 11 so that each may apply its shear of the drive torque at points A and B respectively to the gear” (specification, column 2, line 52-59; also see the drawings reproduced below).



Widdrington fails to disclose the “elastic support”, and there also is no suggestion or teaching of making the base frame 11 to be elastic. To the contrary, as Appellant believes, the base frame 11 of Widdrington is understood to have a rigid property for firmly supporting the toothed spur gear 10 and the gear drive units 14, 15 thereon, otherwise inaccurate engagement between the spur gear 10 and the drive units 14, 15 may occur due to deformation of the frame 11.

b. Appellant believes that using “everything has an elastic property.” to

construct the “elastic support” is unreasonable, not in light of the specification as it would be interpreted by one of ordinary skill in the art.

In the Office Action, the assertion is made that “elastic support” element required in the claims is disclosed in Widdrington as the portions 11a, 11b, 11c of the frame 11 because “everything has an elastic property.”

2111 Claim Interpretation; Broadest Reasonable Interpretation [R-5]

CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE
INTERPRETATION

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." >The Federal Circuit's en banc decision in Phillips v. AWH Corp., 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) expressly recognized that the USPTO employs the "broadest reasonable interpretation" standard.

The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art."

First, Appellant believes that the examiner’s interpretation is unreasonable. The assertion effectively eviscerates the meaning of the term “elastic”. Following the examiner’s reasoning, almost all descriptive terms (such as “rigid”, “resilient”, “active”, “static”...) would have no meaning at all since nothing is absolute.

Second, it is not constructed in light of the specification as it would be interpreted by one of ordinary skill in the art. In the specification, it states “[T]here is a rigid connection between the automatic rotor turning gear and a frame of the rotating device, so that a little deviation between axes of the rotor turning gear and the rotor may cause an excessive and unstable driving moment of force, which requires a long time to adjust (specification, page 1, paragraph [0002], lines 19-24) ...The elastic support is used instead of the conventional rigid support. Therefore, the apparatus has an improved self-stabilization performance and a small vibration during rotating, and can be operated easily (specification, page 2, paragraph [0011], lines 4-8)”. The elastic support used in the invention may improve self-stabilization performance and make vibration during rotating become small. It is clear that the “elastic” and “rigid” are different physical properties of material and structure. If “everything has an elastic property”, what has a “rigid property”? In fact, descriptive terms “elastic connection”, “rigid connection”, “elastic support” and “rigid support” or the like are commonly and widely used in the claims in many US patents and patent applications.

c. Appellant believes that definition for the phrase “elastic support” is unnecessary in the specification.

In the non-final Office Action and final Office Action, the examiner stated that the specification and claims contain no disclosure for what Appellant intended for the term “elastic” to be defined as in the original filing nor has Appellant provided any definition for this term.

Appellant believes that definition for the term “elastic” is unnecessary in the specification.

2111.01 Plain Meaning [R-5]

IV. < APPELLANT MAY BE OWN LEXICOGRAPHER

An appellant is entitled to be his or her own lexicographer and may rebut the presumption that claim terms are to be given their ordinary and customary meaning by clearly setting forth a definition of the term that is different from its ordinary and customary meaning(s).

If the term is different from its ordinary and customary meaning, the appellant may be a lexicographer to give the clear definition of the term. However, in the invention, the word “elastic” falls within the ordinary and customary meaning, and it is unreasonable to require Appellant to give a definition in the specification. In fact, these descriptive words such as “elastic” and “rigid” are clear for the people having ordinary skilled in the art, and it is not only difficult but also weird to define them in the specification.

d. The counterpart patent application with publication number EP1550792 in European has been issued.

The counterpart patent application with publication number EP1550792 in European was already issued in 2008. The EPO examiner never mentioned that the “elastic” should be defined in the specification, or unacceptable because every has an elastic property.

As stated above, Widdrington fails to disclose “elastic support” in claim 8, and using “everything has an elastic property” to interpret the “elastic support” is unreasonable. Therefore, the rejection of claim 8 under U.S.C. 102(b) as being anticipated by Widdrington, USP 3252349 is improper.

II. The rejection of claims 1 and 5-7 under 35 U.S.C 103(a) as being

unpatentable over Widdrington, USP 3252349 in view of Kiernan, USP 3407681 and further in view of CN 99222132.3 is improper.

Examiner asserted “[W]iddrington does not disclose that the substantially elastic support includes an upper ring and a lower ring, the upper ring being connected to the lower ring through a plurality of substantially elastic ribs... CN 99222132.3 teaches a substantially elastic support which includes an upper ring (to the right of 4 in Figure 1) and a lower ring (to the left of 4 in Figure 1), the upper ring being connected to the lower ring through a plurality of substantially elastic ribs (at 4) and wherein the plurality of substantially elastic ribs are made of an elastic material and rectangular in cross section.”

Aappellant respectfully disagrees.

Specifically, nowhere in CN 99222132.3 can it be found a teaching or implication that the coupling arm 4 (a coupling arm for connecting a speed reducer 2 and the rotor) is an “elastic” element. To the contrary, the coupling arm 4 in CN 99222132.3 is understood to be “rigid” since otherwise the rotation may not be properly transmitted to the rotor. The element “substantially elastic support” is also absent from the Kiernan, USP 3407681.

Therefore, claim 1 is believed nonobvious over the Widdrington, USP 3252349, Kiernan, USP 3407681 and CN 99222132.3 or their combinations, and is therefore patentable. Claims 5-7 are dependent to claim 1, are therefore also patentable.

III. The rejection of claims 9 and 21 and 27 under 35 U.S.C 103(a) as being unpatentable over Widdrington USP 3252349 in view of CN 99222132.3 is improper.

As stated in part I and part II, neither Widdrington USP 3252349 nor CN

99222132.3 discloses the limitations “substantially elastic support”. Therefore, for the same reasoning in part II, the rejection to claims 9, 21 and 27 under 35 U.S.C 103(a) as being unpatentable over Widdrington USP 3252349 in view of CN 99222132.3 is believed improper.

IV. The objection to claims 22-26, 28 and 29 for being dependent from cancelled claims.

In the final Office Action, the examiner stated that “[C]laims 22-26, 28 and 29 are objected to for being dependent from canceled claims. For the purpose of examination the following assumptions are being made: Claim 22 should depend from 21, Claim 23 should depend from 22, Claims 24 and 25 should both depend from 23, Claim 26 should depend from 22, and Claims 28 and 29 should both depend from 27”.

Appellant proposes to cancel the claims 22-26, 28 and 29 to overcome the above objection.

V. The rejection of claims 26, 30 and 31 under 35 USC § 112.

In the final Office Action, the examiner stated as follows:

“Claims 26, 30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter with applicant regards as the invention” in the final Office Action.

Claim 26 recites the limitation “adapted to turn back” in line 2. It is not clear what Applicant means by the phrase “turn back.” Is the bull gear rotated in reverse or by “turn back” does the Applicant mean that the key is being adjusted to move the bull gear away from the rotor?

Claim 30 recites the limitation “the bull gear body” in line 7. There is insufficient antecedent basis for this limitation in the claim.”

To overcome the above rejection under 35 U.S.C. 112, Appellant proposes to cancel claim 26, 30 and 31.

CONCLUSION

Appellant believes that using “everything has an elastic property” to construct the “elastic support” is unreasonable and improper, and Widdrington, USP 3252349, Kiernan, USP 3407681 and CN 99222132.3 all fail to disclose the limitation “elastic support”, Appellant therefore respectfully requests that the Board reverse the examiner as to the issue of whether Appellant’s claimed invention is unpatentable over Widdrington, USP 3252349 in view of Kiernan, USP 3407681 and further in view of CN 99222132.3.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Tianhua Gu". The signature is stylized with a large, sweeping "G" at the end.

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CLAIMS APPENDIX

1. An elastic couple rotor turning gear, comprising:

a substantially elastic support (5) is mounted on a frame (6) of a driven drive, the substantially elastic support (5) including an upper ring (51) and a lower ring (52), the upper ring (51) being connected to the lower ring (52) through a plurality of substantially elastic ribs (53);

a casing (4) with a U-shaped cross section being connected to the substantially elastic support (5) for providing a substantially elastic connection between the frame (6) of the driven device and the elastic couple rotor turning gear; a casing cover (3) being firmly fixed on the casing (4);

a plurality of the speed reducers (2), each with an electric motor (1), being installed evenly or symmetrically positioned around the driven device, each speed reducer (2) having an output shaft (16) extending into the casing (4) under the casing cover (3), the output shaft (16) having a pinion gear (7) mounted thereon and meshed with a gear body (81) of a bull gear (8) positioned in the casing (4), the bull gear being engaged with a shaft coupling (9) through keys (10) via a key seat (83) or an upright post (84), and the shaft coupling (9) being fixed on a rotor (12) of the driven device.

2.-4. (Canceled)

5. The elastic couple rotor turning gear according to claim 1, wherein an axial sliding clearance (13) and a radial sliding clearance (14) are formed between the gear body (81) of the bull gear (8) positioned inside the casing (4) and the casing (4).

6. The elastic couple rotor turning gear according to claim 1, wherein an air clearance is formed between an inner round wall (82) of the bull gear (8) and the shaft coupling (9),

and three screws (15) for adjusting concentricity are evenly distributed along a circumference of the shaft coupling (9).

7. The elastic couple rotor turning gear according to claim 1, wherein the bull gear (8) includes the key seat (83) on an inner round wall (82) thereon or the upright post (84) being mounted on the bull gear (8).

8. An elastic couple rotor turning gear for driving a driven device to rotate, comprising at least two driving units symmetrically arranged around the driven device for evenly rotating the driven device, wherein each of the driving units (7) is connected to a frame (6) of the driven device through a substantially elastic support (5).

9. The elastic couple rotor turning gear of claim 8, wherein the substantially elastic support (5) includes an upper ring (51), a lower ring (52), and a plurality of substantially elastic ribs (53) connecting the upper ring (51) and the lower ring (52).

10-20. (Canceled)

21. The elastic couple rotor turning gear of claim 9, wherein the driven device comprises a rotor (12).

22. The elastic couple rotor turning gear of claim 10, wherein each of the driving units comprises a pinion gear (7) adapted to mesh with a bull gear body (81) of a bull gear (8).

23. The elastic couple rotor turning gear of claim 11, wherein the bull gear (8) is adapted to drive the rotor (12) through a shaft coupling (9) connected to the rotor (12).

24. The elastic couple rotor turning gear of claim 12, wherein the bull gear (8) is adapted to drive the shaft coupling (9) via an engagement of a key (10) and a key seat (83) or an upright post (84).

25. The elastic couple rotor turning gear according to claim 13, wherein the an air clearance is formed between an inner wall of the bull gear (8) and the shaft coupling (9), and three screws (15) for adjusting concentricity are evenly distributed along a circumference of the shaft coupling (9).

26. The elastic couple rotor turning gear of claim 13, wherein the bull gear (8) is adapted to turn back so as to remove the rotor (12) from an external force.

27. The elastic couple rotor turning gear of claim 9, wherein each of the driving units further comprises a casing (4) and a casing cover (3) forming an enclosure accommodating the pinion gear (7) and the bull gear body (81) therein.

28. The elastic couple rotor turning gear of claim 16, wherein the casing (4) is connected to the upper ring (51), and the lower ring (52) is connected to the frame (6) of the driven device.

29. The elastic couple rotor turning gear of claim 16, wherein an axial sliding clearance (13) and a radial sliding clearance (14) are formed between the bull gear body (81) and the casing (4).

30. An elastic couple rotor turning gear for driving a driven device, comprising:

at least two pinion gears (7) symmetrically arranged around the driven device, each adapted to mesh with a bull gear (8), said bull gear (8) being adapted to drive a rotor (12)

through an engagement between a key seat (83) or an upright post (84) provided on the bull gear (8) and a key (10) provided on a shaft coupling (9) connected to the rotor (12);

a casing (4) and a casing cover (3) forming a housing for accommodating the pinion gears (7) and the bull gear body (81) therein;

a substantially elastic support (5) comprising an upper ring (51), a lower ring (52) and a plurality of substantially elastic ribs (53) connecting the upper ring (51) and the lower ring (52), the casing (4) being mounted on the upper ring (51), and the lower ring (52) is fixed on a frame (6) of the driven device; and

at least two electric motors (1), each for driving a corresponding pinion gear (7) through an output shaft (16) of a speed reducer (2) mounted on the casing cover (3).

31. The elastic couple rotor turning gear according to claim 30, wherein an air clearance is formed between an inner wall of the bull gear (8) and the driven device, and three screws (15) for adjusting concentricity are evenly distributed around the driven device.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.